

Post-Consumer Reclaimed Asphalt Shingles in Asphalt Pavement



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History

- Program was started in December 2007
- Greenville Paving & Contracting, Inc. partnered with the Pitt County Transfer Station in Greenville N.C
- 2008 Greenville Paving started putting mix designs together for approval.
- 2009 two pilot projects on resurfacing were done in Division 1 by Greenville Paving and one pilot project was done with OGFC in Division 4 by Barnhill Contracting.
- From 2010- 2011 Greenville Paving done various project on a provisional bases including US 258 in Greene, Lenoir counties.
- The paving industry in our state and the N.C/DOT received reconnection for the US 258 project by being the cover story for the Asphalt Contractor Magazine in December 2010.

Best Practice Guide

- Guide developed to assist interested parties in use of PRAS in Asphalt Pavement
- Based upon practice of other states and NC contractors currently using the material
- It is General Guide
- PRAS users will need to dig deeper into details



Introduction

- Benefits of using PRAS
 - Environmental benefit, saving 10 million tons from landfills annually across the nation
 - Monetary benefit, cost less than virgin liquid
- Similar to using MRAS in Asphalt Pavement
- Requires thorough planning prior to use
- Background information
- Steps to getting started

Composition of Shingles

Tape; Water = >1%

Headlap Sand = 7%

Fiber Glass Mat = 2%

Asphalt = 18-28%; Filler = 34%

Granules = 38%

0

10

20

30

40

50

60

Items involved in using PRAS

- Safety
- Regulations
- Permits
- Asbestos Operations Plan
- Source
- Documentation
- PRAS Processing
- Stockpile Management
- Auditing

Regulations

- NCDOT Specifications
- NCDENR Division of Waste Management
- DHHS Health Hazard Control Unit
- NCDENR Division of Air Quality



Permitting Continued NCDENR Division of Waste Management

- Landfill permit required?
- Accepting clean shingles, no landfill permit required.
- Sorting waste out of shingles being delivered, landfill permit required.





MW Collection



Asbestos Operation Plan

- Asbestos use in shingles prior to 1980's
- DHHS Health Hazard Control Unit
- Asbestos Operation Plan
 - Source of shingles documentation
 - Testing of shingles documentation
- Testing by Certified personnel
 - NC Accredited Asbestos Inspector
 - NC Accredited Roofing Supervisor
- Visual inspection of every load
- Testing frequency – 100 tons or less
- Guidelines for Plan in the BPG



Source of PRAS

- Shingles received at the Asphalt Plant from the roofer
- Shingles received at the Asphalt Plant from a county transfer station
- Process shingles received from a shingle recycler or processor
- Proper documentation required in all cases

Documentation

- Source documentation from roofer – standard document in BPG
- Indicate roofing company
- Signed by the roofer
- Address of source
- NESHAP vs NON-NESHAP
- Asbestos testing documentation
- Maintain documentation for 3 years

Permitting

NCDENR Division of Air Quality

- Must modify your asphalt plant air quality permit prior to beginning.
- Must follow source identification and asbestos testing requirements.
- Must maintain source and asbestos testing documentation for 3 years.
- Non-compliance can result in the Asphalt Plant Air Quality Permit being REVOKED!



PRAS Processing

- Clean material, no debris
- Grinding to 100% passing 3/8" sieve
- Removal of nails
- What goes into the mix comes out of the mix
- Corn Flakes and Coffee Grounds
- Follow NCDOT specifications for PRAS, mix, etc.





Stockpile Management

- Separate tested vs untested
- Separate unprocessed vs processed
- Do not climb processed stockpiles with equipment
- Blend with fine aggregate to keep stockpile manageable

Processed Shingles



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Auditing the Process

- Proper training of all personnel involved
- Internal auditing by personnel not involved in daily process
- External auditing by NCDENR, DHHS and NCDOT
- Non-compliance can result in the Asphalt Plant Air Quality Permit being **REVOKED!**



Conclusion

- No shortcuts
- Start properly
- Know the regulations
- Train all plant staff and roofers involved
- Quality processed material
- Follow the specifications

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